

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

Cheng-Hung Ho	Confirmation No. 9230
Serial No.: 10/811,115	Group Art Unit: 2139
Filed: March 26, 2004	Examiner: Schmidt, Kari L
Title: Image Protection System and Method	TKHR Ref. 250908-1250 Top-Team Ref. 0213-A40130US

**REMARKS IN SUPPORT OF PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Mail Stop Appeal  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This submission is filed in support of the accompanying pre-appeal brief request for review. The FINAL Office Action rejected claims 1-3, 8-10, 11-13, and 18-20 under 35 U.S.C 103(a) as allegedly being obvious over Zhu et al. "Image Coding By Folding" in view of Inomata et al. (US 2004/0120517 A1).

With regard to claims 1 and 11, Zhu and Inomata fail to disclose, suggest, or teach, *inter alia*, the following features, which are recited in those claims:

*"dividing an original image into two image parts **according to a compression technique**, wherein one of the image parts is the base image data and the other image part is the auxiliary image data, and the base image data and the auxiliary image data respectively comprise a part of image contents comprising pixel values of the original image, and compressing the base image data to compressed base image data **according to the compression technique**";*

**"encrypting the auxiliary image data to an auxiliary image data cipher"; and**

**"composing the compressed base image data and the auxiliary image data cipher into a protected image corresponding to the original image, such that *plaintext for the first image part and cipher for the second image part are in the protected image*".**

(Emphasis added). Claims 1 and 11 patently define over the cited art for at least the reasons that the cited art fails to disclose the features emphasized above.

First, Applicant submits that the Examiner's assertion of "under the broadest reasonable interpretation the division of an image into a host and residual image to obtain a compressed image is a compression technique to obtain the compressed image" is misplaced. It is understood that, ***the Applicant asserts the division manners of the claimed invention and the Zhu reference are different.*** The Applicant further submits that, in the Zhu reference, an image is split into two parts of equal size. *The division manner of images in the Zhu reference is predefined and fixed. That is, each image to be processed by Zhu is forced to be split into two parts of equal size.* In the claimed invention, however, ***an original image is divided into two image parts, called base image data and auxiliary image data according to a compression technique.*** It is noted that, ***the compression technique is used for subsequently compressing the first image part (the base image data).*** Nowhere does Zhu disclose that an image is divided into base image data and auxiliary image data ***according to a compression technique, and the same compression technique is used to compress one of the image parts.*** In short, what the Examiner has alleged to be the "broadest reasonable interpretation" of the claim has ignored some of the claimed features and is therefore improper.

Further, the Examiner asserted that, with respect to “the code table representing the quantization values of the image, ... the table represents the image data cipher is and encrypted and decrypted from the image data in which later can be used to obtain the actual image, and under the broadest reasonable interpretation a code table represents an auxiliary image cipher and is encrypted based on the image.” Applicant respectfully disagrees. In this regard, paragraphs [0026] and [0030] of the Inomata reference provide clear definitions for the quantization table and the coding table. Paragraph [0026] of Inomata reads:

“The quantizer 12 quantizes values of each of the input nxn frequency components based on a quantization table 14. **The quantization table 14 is a table containing nxn quantization thresholds, and individual table entries (that is, quantization thresholds) are set in advance before quantization processing.** It is possible to use only a single quantization table 14 for all blocks of the data to be compressed, as the quantization table 14, or to use a plurality of quantization tables 14 and to change the quantization table 14 for each of the plurality of blocks. **Quantization processing carried out by referring to the quantization table 14 can be general processing being carried out with JPEG compression etc.** For example, as the quantization processing it is possible to have processing where, if values of the frequency components (u,v) (u and v are integers in the range 0--(n-1)) are made  $r_{uv}$ , and thresholds corresponding to these frequency components in the quantization table 14 are set to  $Q_{uv}$ , the equation defined by the following equation is applied to all of the nxn data items and output data  $r_{uv}$  is obtained”.

It is understood that, *the quantization table includes quantization thresholds predefined for compressing image blocks, and **is not part of the image itself**.* Additionally, paragraph [0030] of Inomata reads:

“**The coding table 18 is a table showing correspondence relationships between values of the quantization data and code words, and is set before encoding processing.** It is possible to apply a single table to all of the data, but it is also possible to prepare a table for each type of data according to the nature of the type. For example, in the case of JPEG, respective coding tables 18 are prepared for a d.c. component and for an a.c. component”.

It is clear that, *the coding table **is not part of the image itself***. Further, paragraph [0033]

of Inomata reads:

"In parallel with the quantization and entropy encoding, *encryption processing for the **quantization table and the coding table** is carried out by the encryptor 20*. Obviously, this encryption can be encryption of the **tables themselves**, but it is also possible to encrypt **information necessary to reconstruct the table**. For example, in the case of a JPEG encryption table, as is well known, if a table showing number of code words for each code length and coding elements arranged in order of frequency of occurrence is known, it is possible to reconstruct the coding table at the decoding side, which means that the same results can be obtained as encrypting the coding tables themselves, even if the table of number of code words and data of coding elements for order of frequency of occurrence are encrypted."

It is noted that, in the Inomata reference, ***the related tables and information necessary to reconstruct the tables are encrypted***. In the present application, however, the ***auxiliary image data is encrypted***. As described in the application, an original image is divided into two image parts, called base image data and auxiliary image data. Each image part includes a part of the pixel values (image content) of the original image. That is, ***the auxiliary image data includes a part of the pixel values (image content) of the original image***. It is clear that *the auxiliary image data in the application cannot properly be equated to the tables and information necessary to reconstruct the tables in the Inomata reference **since the tables and information necessary to reconstruct the tables in the Inomata reference does not have a part of pixel values of the original image***.

Additionally, in the claimed embodiments, the compressed base image data and the auxiliary image data cipher are composed into a protected image, ***such that plaintext for an image part and cipher for another image part are in the protected image. That is, part of the image data (being compressed) is visible, and part of***

***the image data (being encrypted) is invisible.*** Nowhere in Zhu or Inomata are these features disclosed.

Since Zhu and Inomata fail to teach the claimed features of the independent claims, claims 1 and 11 are patentable over the cited reference. Insofar as claims 2-10 depend from claim 1, and claims 12-20 depend from claim 11, these claims are similarly patentable. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

A credit card authorization is provided to cover the fee associated with the accompanying Notice of Appeal. No additional fee is believed to be due in connection with this submission. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

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